

# Certified Fiber Optic Technician - FOA

4.5 Days, 3.2 CEUs

In this course, students will learn how to understand the limitations of bending, effects of temperature, how to effectively splice and connectorize fiber optics, troubleshoot a system, and confirm the quality of connections and splices. All these skills are necessary to properly install and repair fiber optics systems.

Participants completing the course exercises and lab requirements will be given the Fiber Optic Association (FOA) exam for Certified Fiber Optic Technicians. This exam is proctored by a certified FOA instructor and participants must score a minimum of 70% to meet the FOA certification requirements. This course is intended for electrical contractors, electricians, IT technicians, communications technicians, and any personnel that specifies, installs, and restores fiber optics systems.

## Lab and Classroom Attire

AVO is committed to the personal safety of each participant and requires safety glasses, long pants and ANSI rated "safety-toe" work shoes for lab activities. Lecture courses may involve a tour of a work or shop area and for this reason open-toe shoes and shorts are not considered appropriate attire for the classroom.

## Learning Objectives

To receive 3.2 CEUs, the participant must attend 4.5 days of class (32 contact hours) and attain a minimum grade of 70% on the final exam. Upon completion of this course, the participant will demonstrate that they are able to:

- Identify and specify components for a fiber optic system.
- Determine the appropriate fiber for different applications.
- Install fiber optic cable and test for EIA/TIA acceptable losses.
- Utilize fiber optic test equipment including an optical time domain reflectometer (OTDR), light source, and power meter.
- Perform fusion splices and test them mechanically according to EIA/TIA standards.
- Identify damage to cables and the associated causes.
- Utilize attenuators to adjust power levels (dBm) at the receiver.

## SCOPE

### Day 1\* (7 contact hours)

- I. Introduction
  - A. Schedule
  - B. Course Outline
- II. Fiber Background (1 hr)
  - A. History of FOA
  - B. History of Fiber Optics
  - B. Justifying Fiber Installations
- III. Basics of Fiber Optics (1 hr)
  - A. Terms and Definitions
  - B. Systems of Measurement

- IV. Fiber Optic Communications (1 hr)
  - A. Applications
  - B. Technology
  - C. Benefits and Advantages
- V. Fiber Optic Transmission Systems and Components (1 hr)
  - A. Data Links and Transmission Systems
  - B. Optic Data Link
  - C. Optical Sources
  - D. Optical Detectors
  - E. Exercise

- VI. Optical Fiber (1 hr)
  - A. Components
  - B. Construction
  - C. Types of fibers
  - D. Attenuation
- VII. Fiber Optic Cable (2 hrs)
  - A. Types
  - B. Applications
  - C. Installation Specifications
  - D. Environmental Specifications
  - E. Cable Ratings and Markings

\*Class scheduling times may vary based on discussions and size of class

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### Day 2 (7 contact hours)

- VIII. Connectors and Splices (1 hr)
  - A. Fiber Joints and Connectors
  - B. Types of Connectors
  - C. Types of Splices
  - D. Mechanical Splice
  - E. Fusion Splice
  - F. Exercise
- IX. Labs (5 hrs)
  - A. Mechanical Splices on Multi-Mode and Single-Mode Fiber
  - B. Types of Connectors
  - C. Types of Splices
  - D. Exercise
- X. Network Design (1 hr)
  - A. Determine Needs
  - B. Determine Routing Requirements
  - C. Create Installation Plan

### Day 3 (7 contact hours)

- XI. Testing Labs (7 hrs)
  - A. Continuity
  - B. Visual Inspection of Connectors
  - C. Optical Power
- Day 4 (7 contact hours)
- XII. Testing Labs (7 hrs)
  - D. Loss Testing
  - E. OTDR Testing
  - F. Labs

### Day 5 (4 contact hours)

- XIII. Fiber Optic Installation (1.5 hrs)
  - A. Types of Installation
  - B. Cable Pulling
  - C. Microtrenching
  - D. Restoration
- XIV. Review of CFOT Exam (0.5 hr)
- XV. FOA Exam (2 hrs)

# STANDARD EQUIPMENT LIST

## CERTIFIED FIBER OPTIC TECHNICIAN -FOA

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REVISED 6/7/22 BY: ALAN MARK FRANKS

COURSE NUMBER 404C, REV?

4.5 DAYS

### TEXT

1 / STUDENT      *FOA REFERENCE GUIDE TO FIBER OPTICS , JANUARY 2019*  
EDITION  
JIM HAYES  
(ISBN-1-4392-5387-0)

1 / STUDENT      CFOT STUDENT PACKET

1 / STUDENT      CURRENT FOA AFOT EXAM (FROM FOA INTERNET SITE  
WITH EQUAL NUMBER OF 22A, 22B, AND 22C.)

1 / INSTRUCTOR    ANSWER GUIDES FOR TESTS 22A,22B,&22C.

**NOTE: CFOT EXAMS AND ANSWER GUIDES ARE NOT INCLUDED IN  
STUDENT PACKETS AND WILL BE PLACED IN THE INSTRUCTOR CLASS  
FOLDER.**

### EQUIPMENT FROM RENTELCO

2 / CLASS      FUSION SPLICER WITH CLEAVER (CURRENT MODELS)

1 / CLASS      MULTIMODE OTDR (CURRENT MODEL W/FC)

1 / CLASS      SINGLEMODE OTDR (CURRENT MODEL W/FC)

1 / CLASS      LIGHT SOURCE (SINGLE MODE AND MULTI MODE)

1 / CLASS      POWER METER (SINGLE MODE AND MULTI MODE)

1 / LOT / CLASS    MM JUMPERS & ADDAPTOR KIT ( AS SPECIFIED IN TRS  
RENTELCO ORDER)

1 / LOT / CLASS    SM JUMPERS & ADDAPTOR KIT ( AS SPECIFIED IN TRS  
RENTELCO ORDER)

### ADDITIONAL TOOLS AND EQUIPMENT INCLUDED IN 3 BLACK ABS CASES DESIGNATED FOR CFOT CLASSES

1 / STUDENT      STANDARD SAFETY GLASSES (REMAIN WITH STUDENT)

3 / STUDENT      TYPE ST 62.5/125mm CONNECTOR

3 / CLASS      1 - Km SPOOL OF SINGLEMODE FIBER

3 / CLASS      1 - Km SPOOL OF MULTIMODE FIBER

1 / 2 STUDENTS    FIBER OPTIC TOOL KIT

2 / CLASS      ST-ST MULTIMODE JUMPER

2 / CLASS      ST-ST CONNECTOR BARREL

2 / CLASS      SC / FC CONNECTOR BARREL

2 / CLASS      ST / FC CONNECTOR BARREL

3 / STUDENT      SC ANAEROBIC CONNECTOR – MM – ZIRCONIA

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1 / CLASS	ANAEROBIC ADHESIVE KIT
1 / 2 STUDENTS	FIS HEAT CURE EPOXY (BLUE CURE 2.0 GRAMS)
3 / CLASS	MULTIMODE MECHANICAL SPLICE (2 DIFFERENT ONES)
3 / CLASS	SINGLEMODE MECHANICAL SPLICE (2 DIFFERENT ONES)
2 / CLASS	ELECTRIC HEAT GUN
4 METERS / STUDENT	62.5 /125mm MULTIMODE SIMPLEX CABLE (3mm O.D.)
1 / CLASS	MULTIMODE LAUNCH CABLE
1 / CLASS	SINGLEMODE LAUNCH CABLE
1 / CLASS	FIBER OPTIC CABLE PROPS

### AUDIO VISUAL EQUIPMENT

1 / CLASS	POWERPOINT PROJECTOR
1 / CLASS	BOARD WHITE WITH MARKERS

SPECIAL INSTRUCTIONS FOR MATERIALS/CONSUMABLES:

CURRENTLY PURCHASED THROUGH “FIBER INSTRUMENT SALES”

[www.fiberinstrumentsales.com](http://www.fiberinstrumentsales.com)

- 1) SIMPLEX CABLE (PATCHCORD)----- 3.0 mm Simplex Cable Part # M62-SX01-C3NRO
- 2) SC CONNECTOR-----Type SC Connector FIS part # 13066AR
- 3) ST CONNECTOR-----Type ST Connector FIS part # F10066100 (100 count)
- 4) REPLACEMENT CONSUMABLES--- Replacement Consumables FIS part # F1-0053D
- 5) REPLACEMENT TOOLS AS NEEDED
- 6) REPLACEMENT FIBER OPTIC CABLES AS NEEDED
- 7) Use current FIS Product Catalog for additional purchases that occur from time to time based on use.

**NOTE: IT IS THE INSTRUCTORS RESPONSIBILITY TO PROVIDE AN ITEMIZED LIST OF MATERIALS AND CONSUMABLES THAT REQUIRE REPLACING PRIOR TO THE NEXT CFOT COURSE. THIS LIST WILL BE COMPILED AT THE COMPLETION OF THE COURSE AND FORWARDED TO THE RESOURCE MANAGER FOR PURCHASE.**